

REMARKS

Claims 1-36 are currently pending in the application. Claims 1, 2, 5, 7, 17, 18 21, 23 and 33-35 are currently at issue in the case, and Claims 3, 4, 6, 8-16, 19, 20, 22, 24-32 and 36 have been indicated as being allowable if rewritten in independent form.

The Office has rejected Figs. 1 and 2 because they lack the required "prior art" legend. In response, the Applicants have supplied corrected replacement drawings in compliance with 37 C.F.R. § 1.121(d), including the required legend and labeling indicating that the amended drawings are replacement sheets.

The Office has objected to the disclosure because of various informalities which have been corrected in the amendments to the specification above.

The Office has rejected Claims 7 and 23 under 35 U.S.C. § 112, first paragraph as failing to comply with the enabling requirement. Both claims contain the phrase "an average of absolute values of the gray levels of all of the pixels included in the square block except for the current pixel frame", which the Office believes was intended to correspond to Equation (2) on page 13 of the specification. The Office states, however, that Equation (2) calculates an average variance and not an average of absolute values except for the current pixel frame. In response, the Applicants have amended Claims 7 and 23 to read "an average of absolute values of a difference between the gray level of the current frame pixel and the gray levels of all of the pixels included in the square block except for the current frame pixel", adding the underlined portion. The Applicants submit that this change to the claims brings these claims into accordance with Equation (2) of the application, for calculating an average variance between the pixels in the

block and the center pixel in the block. As a result, the Applicants respectfully submit that the rejection of Claims 7 and 23 has been traversed.

The Office has rejected Claims 2 and 18 as being indefinite for failing to particular point out and distinctly claim the subject matter regarded as the invention. In response, the Applicants have deleted Claims 2 and 18.

The Office has rejected Claims 1, 5, 17, 21 and 33-35 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,590,616 (Takeuchi) in view of U.S. Patent No. 6,310,588 (Kawahara, et al., hereinafter "Kawahara") and further in view of European Patent No. 0 973 147 A1 (Kawakami, et al., hereinafter "Kawakami").

With respect to Claim 33, the Applicants respectfully disagree with the Office that the false contour elimination unit as claimed in Claim 33 is disclosed or taught by any of the cited references, either separately or in combination. Claim 33 specifically recites that the false contour elimination unit "converts subfields by changing a gray level of the corrected digital image signal depending on a degree of gray level transition between each current frame pixel and a corresponding previous frame pixel in the image signal". The Office states that this is disclosed in Kawakami in Fig. 3, elements 3 and 4 combined and in paragraph 41. However, the Applicants respectfully submit that Kawakami does not disclose this element of Claim 33 as claimed in the present application. In Kawakami, the change in the gray level is not brought about by analyzing the difference between a gray level of each current pixel and a gray level of each corresponding previous frame pixel, but instead is calculated as a function of the motion of the frames. In Kawakami, the entire image is analyzed to determine the degree and direction of motion for each pixel in the frame between the current frame and the previous frame. This

detection is summarized in a motion vector table which provides the degree of motion and the direction of motion for each pixel in the frame. In turn, this motion vector table is used to look up the required change in the gray level for each pixel in a correction table. The Applicants direct the Office's attention to paragraphs, 41, 47 and 48:

[0041] FIG. 3 shows a general configuration of a tone display device to which the moving picture display method of the present invention is applied. In this tone display device, a video signal processor 1 separates a video signal into the respective color components R, G and B, and an A/D converter 2 converts these color components to digital image of R, G and B, thereafter inputting these digital image to a motion detection section 3. In this motion detection section 3, smoothing processing, a multi-hierarchical binary processing, block matching processing, and majority/integration decision processing are carried out so as to detect the number of motion pixels and the moved direction respect to an inputted image. *Information on the number of motion pixels, the moved direction, and detection block, which have been detected by the motion detection section 3, are input to a data correction processing section 4 having a correction table in which an amount of correction is set in accordance with the number of motion pixels and the moved direction.* Then, each tones of pixels generating a false contour is corrected and output to an output processing section 5. The output processing section 5 converts tone data of each pixel to the number of pulses corresponding to a voltage applied time width so as to provide to an X scan driver 7 and a Y scan driver 8. Thereby, a halftone display is performed on an image display section 6 composed of PDP. (emphasis added)

[0047] A majority/integration decision section 28 determines the number of motion pixels and the moved direction of each detection block KG, and *registers the determination result to a motion vector table 29.* (emphasis added)

[0048] A data correction processing section 4 corrects pixel data of the false contour portion *using the motion vector table 29 and a correction table prepared based on a visual experiment in advance.* (emphasis added)

Claim 33 claims a unit which changes the gray level for each pixel as a function of the difference between the current gray level and the previous gray level of that pixel. Therefore, with respect to Claim 33, the Applicants respectfully submit that the false contour elimination unit thereof is not disclosed by the combination of cited references because of the different methodologies used to change the gray levels, and that as a result, the rejection of Claim 33 has been traversed.

With respect to Claim 34, the Applicants respectfully submit that the element reciting "a first gray level changing unit" which provides a function identical to the false contour elimination unit of the previous claim is not disclosed by the combination of the cited references. The Office states that the gray level changing unit is disclosed in Kawakami as Fig. 4, elements 24-28 and in paragraphs 44-49. This portion of Kawakami does not disclose a gray level changing unit which calculates the differences for each pixel between the current frame and the previous frame and changes the gray level of the current frame based on the differences. Instead, the cited portions of Kawakami use the motion vector table to look up the changes in the gray levels in a correction table prepared in advance. *See* paragraphs 47 and 48 of Kawakami, reproduced above. As a result, the Applicants respectfully submit that because the first gray level changing unit of Claim 34 is not disclosed by the combination of the cited references, that claim 34 is patentably distinct from the cited references and that the Office's rejection has been traversed. In addition, the Applicants further submit that Claim 34 is patentable based on its dependence from a patentable parent claim, i.e., Claim 33.

With respect to Claim 35, the Office Action states that Kawakami discloses a pixel transition determiner as Fig. 4, element 27 and as described in paragraph 46. Paragraph 46

describes motion vector detector 25, which comprises a binary calculation block 26 and a comparison block 27. The Office Action states that element 27 corresponds to the pixel and transition determiner of Claim 35. The pixel transition determiner determines the degree of gray level difference between each pixel in the current frame and the corresponding pixel in the previous frame. Paragraph 46 states that the comparison detection block 27 has respective comparatives for each color and obtains the motion of images for inner field by block matching. This is not the same as making a determination of the degree of gray level transition between the pixel in the previous frame and the pixel in the current frame. Therefore, the Applicants respectfully submit that the pixel transition determiner element is not present in Kawakami.

The Applicants also respectfully submit that the still image determiner of Claim 35 is not disclosed in Kawakami. The Office Action states that it is disclosed as element 28 in Fig. 4, also in the flow chart in Fig. 21 and in paragraphs 98-99. However, these portions of Kawakami disclose how the motion vectors for each of the individual colors R, G and B can be mapped into one motion vector. The Applicants direct the Office's attention to paragraph 96 which states "Fig. 21 is an [sic] flow chart *for obtaining one motion vector from the motion vector value of each of the R, G and B images*" (emphasis added). Therefore, no still image detection is occurring in Kawakami and, as a result, the Applicants submit that the still image determiner element of claim 35 of the present application is not disclosed.

The Applicants also respectfully submit that the second gray level changing unit as claimed in Claim 35 is not present in Kawakami. The second gray level changing unit in Claim 35 "changes the gray level of the current frame according to a predetermined method using the current frame information output from the error diffuser, the degree of gray level transition

output from the pixel transition determiner, the previous frame information stored in the frame memory part, and the pixel group number information stored in the pixel group number storage part". The Applicants respectfully submit that because there is no pixel transition determiner in Kawakami that the second gray level changing unit cannot utilize information output from the pixel transition determiner to make the determination of the proper changes to make for each gray level for each pixel. As a result, the Applicants submit that this element of Claim 35 is also not present. Based on these differences, the Applicants respectfully submit that the Office's rejection of Claim 35 has been traversed and that Claim 35 is patentably distinct from the cited references, and is further patentable based on its dependency from claims which the Applicants have argued are also patentable.

The Office has also rejected Claims 1 and 17 drawn to an apparatus and associated method of operation, stating that the limitations of independent Claim 1 are the same as the limitations of Claim 34. However, the Applicants have argued that Claim 34 is patentable based on a lack of a first gray level changing unit element. As a result, Claims 1 and 17, which also claim a first gray level changing unit should be patentable for the same reasons as with respect to Claim 34.

With respect to Claims 5 and 21, the Office states that these claims contain the same limitations as Claim 35 but lack the inherited limitations of Claim 33. The Applicants respectfully submit that reasoned arguments have been provided above to distinguish Claim 35 from the prior art and, as a result, Claims 5 and 21 which contain the same limitations as Claim 35, should be patentable for the same reasons as provided with respect to Claim 35.

The Office states that claims 3, 4, 6, 8-16, 19, 20, 22, 24-32 and 36 are objected to as being dependent upon rejected base claims but would be allowable if rewritten in independent form. The Applicants appreciate the Office's acknowledgement of the allowable subject matter, but decline to amend the claims at this time, pending the outcome of the prosecution of the remaining claims of the application.

Conclusion

The Applicants have provided reasoned arguments with respect to claims 33-35 as to why those claims are distinguishable over the cited references and, as a result, those claims are believed to be patentable in light thereof. In addition, Claims 1 and 17, corresponding to Claim 34, and Claims 5 and 21, corresponding to Claim 35, should therefore also be patentable for the same reasons. Claims which were objected to as being dependent upon rejected base claims remain unamended, but the Applicants reserve the right to amend these claims to place them in independent form at a later time.

Reasoned arguments have been provided distinguishing the amended claims from the prior art. As a result, the Applicants respectfully request that all pending claims be reconsidered in light of the amendments and remarks.

It is believed that this Response and Amendment requires no fee. However, if an additional fee is required for any reason, please charge Deposit Account No. 02-4800 the necessary amount.

Should the Examiner have any questions regarding these amendments or arguments, the Applicant requests that the Examiner contact the Applicant's attorney, listed below.

Respectfully submitted,



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